

Serial No. 10/613,702
Page 2 of 14

**RECEIVED
CENTRAL FAX CENTER**

JAN 22 2008

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

- 1 1. (currently amended) A method of operating a mobile node having a network layer
2 and a plurality of network interfaces, each with a respective device driver , the method
3 comprising the steps of:
4 transmitting communications from the network layer to any of the network
5 interfaces by way of a multi-interface driver capable of communication with the
6 respective device driver corresponding to each respective network interface; and
7 switching from a first one of the network interfaces to a second one of the
8 network interfaces by changing the one of the plurality of device drivers with which the
9 multi-interface driver communicates, while hiding the switching from the network layer.
- 1 2. (original) The method of claim 1, further comprising communicating between a
2 virtual interface and the network layer by way of the multi-interface driver, the virtual
3 interface presenting the appearance of always being an active interface to the network
4 layer, regardless of which network interface is being used at a given time.
- 1 3. (original) The method of claim 2, wherein the virtual interface provides a source
2 address to the network layer to be used in data packets transmitted by the mobile node.
- 1 4. (original) The method of claim 1, further comprising:
2 selecting the second one of the network interfaces, based on a signal strength of
3 each network interface and a user priority assigned to each network interface.
- 1 5. (currently amended) A method of operating a mobile node, comprising the steps
2 of:

Serial No. 10/613,702

Page 3 of 14

3 identifying at least two available interfaces for communications by the mobile
4 node;
5 determining a plurality of characteristics of each of the network interfaces,
6 wherein the characteristics for each network interface include a signal strength value and
7 a user priority value;
8 selecting one of the network interfaces based on the ~~plurality of~~ characteristics of
9 the respective network interfaces, wherein a weight applied to the user priority value for
10 each network interface depends on the respective signal strength for the network
11 interface; and
12 communicating by way of the selected network interface.

1 6. (original) A method according to claim 5, wherein the mobile node is
2 communicating by way of a current network interface connection other than the selected
3 network interface, the method further comprising:
4 establishing a connection between the mobile node and the selected network
5 interface; and
6 maintaining the current network interface connection until after the connection
7 between the mobile node and the selected network interface is established.

7. (cancelled)

1 8. (currently amended) The method of claim [[7]] 5, wherein:
2 the mobile node is currently communicating by way of a current network interface
3 connection, and
4 the score is calculated by applying a higher weight coefficient to the signal
5 strength of the current network interface connection than a weight coefficient applied to
6 the signal strength of any other available network interface.

9. (cancelled)

Serial No. 10/613,702

Page 4 of 14

1 10. (currently amended) The method of claim [[9]] 5, wherein a weight coefficient of
2 zero is applied to the user priority value for each network interface having a signal
3 strength below a respective threshold value for that network interface.

1 11. (original) The method of claim 10, wherein:
2 the mobile node is currently communicating by way of a current network interface
3 connection, and
4 the threshold value for the current network interface connection is lower than the
5 threshold value for other network interfaces.

1 12. (original) The method of claim 1, further comprising:
2 automatically selecting the second network interface based on predefined criteria;
3 displaying an identification of the automatically selected interface;
4 receiving a manual override instruction from a user identifying a selection of the
5 second network by the user; and
6 switching to the network selected by the user.

1 13. (withdrawn) A method of operating a mobile node having an IPsec layer,
2 comprising the steps of:
3 establishing an IPsec session between the mobile node and a virtual private
4 network/IPsec gateway by way of a first network;
5 switching from the first network to a second network without disturbing the IPsec
6 session, the switching being effected using mobile IP at a lower layer than the IPsec
7 layer; and
8 hiding the switching from the IPsec layer by providing a fake MAC layer address
9 of a default router to the IPsec layer, and rewriting MAC layer headers in incoming and
10 outgoing packets in an intermediate driver with correct MAC layer addresses.

1 14. (original) A mobile node comprising:
2 a plurality of network interfaces, each with a respective device driver;
3 a network layer;

Serial No. 10/613,702

Page 5 of 14

4 a multi-interface driver capable of communication with each network interface by
5 way of the respective device driver for that network interface, the multi-interface driver
6 handling communications from the network layer to any of the network interfaces;
7 the multi-interface driver switching from a first one of the network interfaces to a
8 second one of the network interfaces by changing the one of the plurality of device
9 drivers with which the multi-interface driver communicates, while hiding the switching
10 from the network layer.

1 15. (original) The mobile node of claim 14, further comprising a virtual interface in
2 communication with the network layer by way of the multi-interface driver, the virtual
3 interface presenting the appearance of always being an active interface to the network
4 layer, regardless of which device driver is being used at a given time.

1 16. (original) The mobile node of claim 15, wherein the virtual interface provides a
2 source address to the network layer to be used in data packets transmitted by the mobile
3 node.

1 17. (original) The mobile node of claim 14, further comprising:
2 means for selecting the second one of the network interfaces, based on a signal
3 strength of each network interface and a user priority assigned to each interface.

1 18. (currently amended) A mobile node, comprising:
2 at least two available network interfaces for communications by the mobile node;
3 interface detection means for determining a plurality of characteristics of each of
4 the network interfaces, wherein the characteristics of each network interface include a
5 signal strength value and a user priority value;
6 means for selecting one of the network interfaces based on the ~~plurality of~~
7 characteristics[[,]] of the respective network interfaces, wherein a weight applied to the
8 user priority value for each network interface depends on the respective signal strength
9 for the network interface;
10 wherein the mobile node communicates by way of the selected network interface.

Serial No. 10/613,702

Page 6 of 14

19. (cancelled)

1 20. (original) The mobile node of claim 18, wherein the selecting means includes
2 hysteresis.

1 21. (withdrawn) A mobile node, comprising:
2 a network layer;
3 an IPSec driver below the network layer;
4 an intermediate driver below the IPSec driver;
5 at least one network interface to and from which the intermediate driver sends and
6 receives packets,
7 wherein the intermediate driver includes means for switching from a first network
8 to a second network, without disturbing an ongoing IPSec session, the switching being
9 effected using mobile IP at a lower layer than the IPSec layer, and
10 the intermediate driver hides the switching from the IPSec layer by providing a
11 fake MAC layer address of a default router to the IPsec layer, and rewrites MAC layer
12 headers in incoming and outgoing packets with correct MAC layer addresses.

1 22. (currently amended) A computer readable medium encoded with computer
2 program code, wherein, when the code is executed by a processor, the processor performs
3 a method of operating a mobile node having a network layer and a plurality of network
4 interfaces, each with a respective device driver, the method comprising the steps of:
5 transmitting communications from the network layer to any of the network
6 interfaces by way of a multi-interface driver capable of communication with the
7 respective device driver corresponding to each respective network interface; and
8 switching from a first one of the network interfaces to a second one of the
9 network interfaces by changing the one of the plurality of device drivers with which the
10 multi-interface driver communicates, while hiding the switching from the network layer.

Serial No. 10/613,702

Page 7 of 14

1 23. (currently amended) A computer readable medium encoded with computer
2 program code, wherein, when the code is executed by a processor, the processor performs
3 a method of operating a mobile node, comprising the steps of:
4 identifying at least two available network interfaces for communications by the
5 mobile node;
6 determining a plurality of characteristics of each of the network interfaces,
7 wherein the characteristics of each network interface include a signal strength value and a
8 user priority value;
9 selecting one of the network interfaces based on the plurality of characteristics of
10 the respective network interfaces, wherein a weight applied to the user priority value for
11 each network interface depends on the respective signal strength for the network
12 interface; and
13 communicating by way of the selected network interface.

1 24. (withdrawn) A computer readable medium encoded with computer program code,
2 wherein, when the code is executed by a processor, the processor performs a method of
3 operating a mobile node having an IPsec layer, comprising the steps of:
4 establishing an IPsec session between the mobile node and a virtual private
5 network/IPsec gateway by way of a first network;
6 switching from the first network to a second network without disturbing the IPsec
7 session, the switching being effected using mobile IP at a lower layer than the IPsec
8 layer; and
9 hiding the switching from the IPsec layer by providing a fake MAC layer address
10 of a default router to the IPsec layer, and rewriting MAC layer headers in incoming and
11 outgoing packets in an intermediate driver with correct MAC layer addresses.

1 25. (withdrawn) A method of selecting a Wi-Fi network from a plurality of Wi-Fi
2 networks, each Wi-Fi network having an associated ESSID, the method comprising the
3 steps of:
4 receiving an input indicating a selection of a complete ESSID, an ESSID prefix,
5 or a request for any available Wi-Fi network; and

Serial No. 10/613,702

Page 8 of 14

6 automatically selecting:
7 the Wi-Fi network associated with the complete ESSID, if the input indicates the
8 complete ESSID,
9 one of the Wi-Fi networks associated with an ESSID having the ESSID prefix if the input
10 indicates selection of the ESSID prefix, or
11 one of the available Wi-Fi networks if the input indicates a request for any available Wi-
12 Fi network,
13 wherein the automatic selecting step is based on at least one of the group
14 consisting of signal strength in each Wi-Fi network, priority of each Wi-Fi network,
15 number of clients in each Wi-Fi network, and frame error rate in each Wi-Fi network, if
16 the input indicates selection of the ESSID prefix or any available Wi-Fi network.

1 26. (withdrawn) The method of claim 25, wherein the input is one of the group
2 consisting of data from a profile configuration and data manually entered by a user.